

**REMARKS**

Applicant notes with appreciation the Examiner's allowance of claims 6, 11-16, 18-22 and 24.

Preliminarily, applicants note that on the Office Action Summary, at box 10, the boxes related to the drawings are unchecked. Applicants respectfully request an indication from the Examiner that the drawings were accepted.

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

In the specification, paragraphs have been amended on pages 15-16, 19, 21-22, and 57. Claims 1-5, 7, 10, 12, 13, 17-20 and 23 are currently being amended. Claim 25 has been added. Newly added claim 25 is similar to claim 24, except that the means plus function elements have been converted to standard structural elements and the words "predetermined" and "only" have been removed.

This amendment adds and changes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-24 are now pending in this application. Claims 6, 11-16, 18-22 and 24 are allowed, whereas claims 1-5, 7-10, 17 and 23 have been rejected. The Office's rejections are addressed below.

a. Rejection of claims 1, 4-5, 7-10, 17 and 23 under 35 U.S.C. §103(a).

In the office action, claims 1, 4-5, 7-10, 17 and 23 are rejected under 35 USC § 103(a) as being unpatentable over Murakami (6,702,717) in view of Leach et al (6,409,287) and Matsuno (6,442,469). Respectfully, these rejections are traversed for at least the following reasons.

The present application broadly addresses, *inter alia*, the problems associated with "a mutual balance or control interference between the vehicle dynamics control, and the lane

deviation control” p. 3. lines 16-20. It is respectfully contended that the references even if combined would not lead a person of ordinary skill in the art to recognize or address this problem. Left with a combination of Murakami (‘717), Leach (‘287) and Matsuno (‘469), a person of ordinary skill in the art would still be faced with a mutual dependency between the VDC and the LDP systems that requires further inventive work to solve. Solutions to this problem are not taught or suggested in the cited art. It is respectfully submitted that this observation allows the applicant to traverse the rejections above.

It is also respectfully contended that the cited references are lacking elements of the applicant’s current claims. Particularly, Leach (‘287) is cited by the Examiner as disclosing “a yawing motion control section that controls a yawning motion of the host vehicle by producing the yaw moment corresponding to a final desired yaw moment and acting in a direction that improves the driving stability when the driving stability is deteriorated, the final desired yaw moment being determined to be equal to a controlled variable of the lane deviation prevention control when the vehicle dynamics control is inoperative and determined to be equal to a controlled variable of the vehicle dynamics control when the vehicle dynamics control is operative.” (emphasis added). See Office Action at p. 3.

More particularly, Leach does not teach that the yaw moment is “determined to be equal to a controlled variable of the lane deviation prevention control”, because the Leach reference does not include mention of lane deviation prevention control at all. Furthermore, Leach does not teach any functional relationship between an LDP system and a VDC system as found in the present claims (“equal to a controlled variable of the lane deviation prevention control when the vehicle dynamics control is inoperative and determined to be equal to a controlled variable of the vehicle dynamics control when the vehicle dynamics control is operative”). It is respectfully submitted that this argument allows the applicants to traverse the 103(a) rejections presented above. *See MPEP §2143.03 (“To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.”)*

Furthermore, it is respectfully contended that the Leach reference is not combinable with the Matsuno and Murakami references to form a prior art rejection under 103(a), as there

is no suggestion in any of the references that the combination would be desirable. The Leach reference relates in general to a cornering-enhancing system for use by advanced drivers under race conditions. *See, e.g.*, Col. 1, Lines 37-42. The experienced driver under these conditions as taught by Leach can operate switches or levers to manually manipulate the yaw moment applied to the vehicle during each cornering maneuver. *See id; see also* claim 1. More specifically, Leach describes a system that is really only advantageous under a limited set of circumstances, specifically where the driver is highly skilled and involved in aggressive driving at high speeds (race conditions). Under these circumstances, manual operation of the yaw moment control is deemed desirable, since presumably the experienced driver of a racing vehicle is able to control the application of yaw moment more finely and more flexibly than an on-board control system. Leach thus teaches away from a combination with non-racing technology, as one can easily imagine by considering the consequences of a lane deviation prevention control system in the high-speed, high-risk passing situations of a race. It is respectfully submitted that this observation allows the applicant to traverse the above rejections.

The previously rejected independent claims 1, 5, 17, and 23 have additionally been amended to make the differences over the Leach reference more clear. It is respectfully submitted that this claim limitation allows the applicants to traverse the above rejections.

The Matsuno reference relates generally to a system for preventing deviations from a driving lane while the vehicle is cornering. The disclosure of Matsuno indicates that a primary desired yaw rate is calculated with reference to the curvature of the road. When the rotation of the steering wheel exceeds a threshold value, the driver's intention to corner is indicated and the system activated. *See, e.g.*, claim 2. Under the Matsuno system, when the absolute value of the actual yaw rate is less than the absolute value of the desired yaw rate, the actual yaw rate is corrected to the value of the desired yaw rate. *See, e.g.*, claim 1; Col. 18, Lines 14-24.

The LDP control system of the present application, in contrast, is usually not active when the driver has a lane-change intention, as can be determined, *inter alia*, by the driver's use of the directional indicators. *See* Page 17, Lines 14-17. The rejected independent claims

1, 5, 17, and 23 have therefore been amended to include the limitation that the lane deviation preventive measures are initiated when the vehicle exceeds a lane-deviation criterion *in absence* of a driver's intention for lane changing. It is respectfully submitted that this amendment allows the applicant to traverse the rejections, since Matsuno teaches the use of yaw rate correction in conjunction, and not *in the absence*, of an intention to steer the vehicle sharply, such as during a lane-change.

The Murakami reference is not able to fill in the gaps left by Matsuno and Leach. Instead, Murakami relates to a vehicle behavior control apparatus and method capable of carrying out suitable turning behavior control depending on whether a differential mechanism is in a locked (ON) state or in a free (OFF) state. *See* Col. 2 Lines 4-7. This is asserted to improve turning behavior during under- or oversteering. The Murakami reference nowhere discloses an LDP system or addresses the problems associated with the interaction between such a system and other systems.

In view of the foregoing amendments and remarks, claims 1-5, 7-10, 17 and 23 are respectfully submitted to be in condition for allowance.

b. Rejections of claims 2 and 3 under 35 U.S.C. §103(a).

In the office action, claims 2 and 3 are rejected under 35 USC § 103(a) as being unpatentable over Murakami (6,702,717), Leach et al (6,409,287) and Matsuno (6,442,469) further in view of Seizawa (5,615,117).

Claims 2 and 3 depend from (amended) claim 1 and are now respectfully believed to be in condition for allowance based on the amendments and observations made above under subsection (a).

Additionally, the Seizawa reference is respectfully contended to refer to a control method for a front and rear wheel steering system. The reference does not mention the possibility of the sideslip angle being used to calculate a desired vehicle yaw rate for use in a VDC system. This observation is believed to allow the applicants to traverse the rejections regarding claims 2 and 3 for the reasons that there would have been no motivation to combine

Seizawa with the three base references and that the combination of references does not teach all elements of the claims.

c. Summary

Applicant believes that all claims the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

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Respectfully submitted,  
  
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